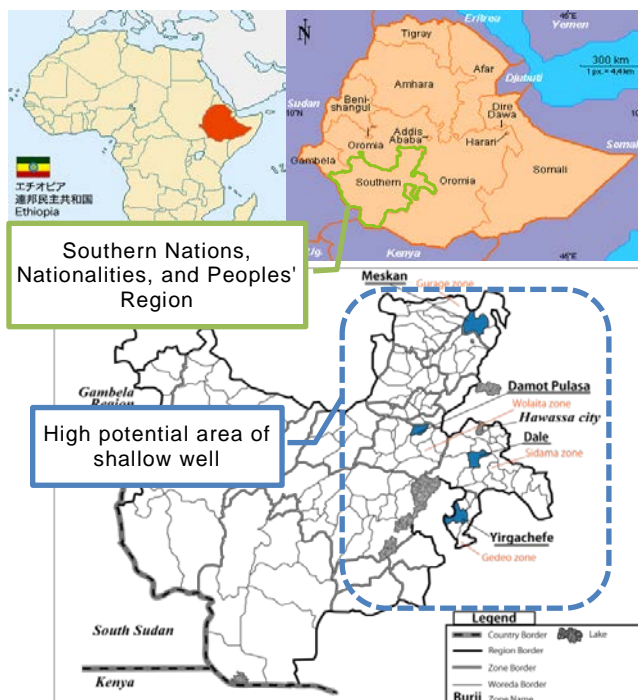


Federal Democratic Republic of Ethiopia The Project for Rural Water Supply, Sanitation and Livelihood Improvement through Dissemination of Rope Pumps (RPs) for Drinking Water (WAS-RoPSS)

December 2016



1. Background and Challenges to be Addressed

In Federal Democratic Republic of Ethiopia, hereinafter referred to as Ethiopia, the proportion of the population who has access to safe water is 57% (2015, UNICEF), one of the lowest in Sub-Saharan Africa, and increasing the water supply coverage is an urgent and priority development issue in the country. The government of Ethiopia developed Universal Access Plan and committed itself to increase water supply coverage to 98.5%. The concept of Self-supply was introduced as one of the service delivery modalities to address this issue, and in One WASH National Program, a comprehensive development plan of water and

sanitation sub-sector, which was issued in 2013, Self-supply is clearly stipulated as an important component of water supply services.

Self-supply is defined as a way of improving water supply facilities by 100% self-investment, or with partial subsidy for groups. The rope pump technology is recognised as one of the chief low cost technologies which contribute to Self-supply. In “the National Policy Guidelines for Self-supply in Ethiopia (2012)”, it is clarified that a hand-dug well fitted with a rope pump is considered as an improved water supply facility, when it is properly protected from contamination. The Government of Ethiopia aims to increase the number of rope pump wells at a large scale and to increase the water supply coverage.

Japan as a development partner has been technically supporting to improve and to disseminate the rope pump technology since 2004. Through the experiences, it was learnt that there are several issues which may hamper dissemination of the rope pump technology; inconsistency of rope pump qualities in the market, and difficulty in obtaining some assembling parts. It was also found that there should be the enabling environment to accelerate the dissemination, which includes demand creation among rural communities, and establishment of financial support facilities for the rural households. Prevention of water contamination was also found to be another important factor to be addressed as rope pumps are normally installed on shallow wells.

2. Project Approach to Addressing the Challenges

The Project devised its approach to achieve the project purpose with two pillars; 1) establishment of an enabling environment for rope pump dissemination through Self-supply and 2) realisation of rope pump dissemination and improvement of water supply, sanitation and livelihood in the target areas.

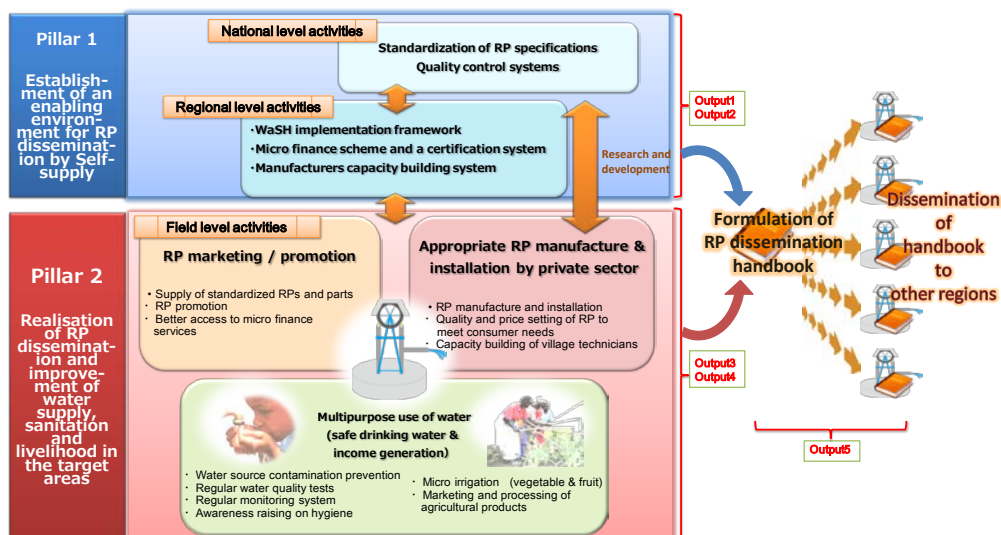
Pillar 1

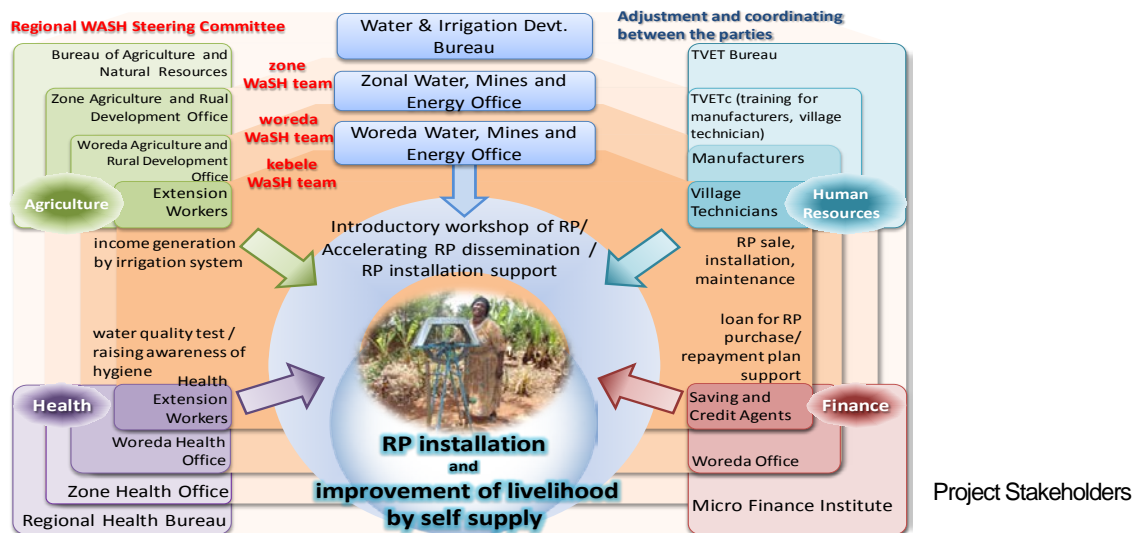
Establishment of an enabling environment for rope pump dissemination by Self-supply

At the national level, improvement of rope pump models and standardisation were attempted. Based on the analysis of the existing rope pump models, improved models were developed and tested. The minimum standards of the rope pump specifications were discussed among the stakeholders, including rope pump manufacturers and the government officers. At the regional level, the enabling environment for sustainable supply of quality rope pumps was discussed, while seeking for the ways and means to establish a certification system for manufacturers and installers. Introduction of micro finance scheme to support the purchase of rope pumps for rural people, and the government extension services were encouraged to promote the rope pump technology.

[Overall Goal]
Rope pump dissemination and water supply and sanitation improvement in SNNPR*
[Project purpose]
Rope pump dissemination and water supply and sanitation improvement in the target areas
[Output 1] Rope pump standardisation
[Output 2] Quality control and human resources development
[Output 3] Promotion of rope pump and multiple use services by the governmental organisations
[Output 4] Practice of rope pump use and hygiene
[Output 5] Handbook for rope pump promotion

*Southern Nations, Nationalities and People's Region





Pillar 2 Realisation of rope pump dissemination and improvement

At the local level, the Project supported the private manufacturers in market promotion of rope pumps, while creating the demands in the markets through introduction of a micro finance scheme. For those who purchased the rope pumps, the extension services were strengthened in water hygiene and sanitation, multi-purpose use of water to improve livelihoods of the user households.

The experiences and lessons learnt from the activities were compiled as the Handbook for Rope Pump Dissemination through Self-supply.

Activities

1 . Improvement of Rope Pump Technology and Standardisation

Improvement of rope pump

Based on the analysis of the existing rope pump models in Ethiopia and other countries, new rope pump models were developed and tested. As the result, two promotional models, namely “2014 Model” and “Pole Model” were selected and being manufactured by the local manufacturers. The technical details were compiled as “Rope Pump – A Manufacturing, Installation, Operation and Maintenance Manual”.



2014 Model Pole Model
New rope pump models

Standardisation of rope pump specification

In order to maintain a certain level of rope pump products in the market, the minimum standard specifications of rope pump were discussed and agreed among the stakeholders, including manufacturers and Ministry of Water, Irrigation and Electricity (MoWIE). In April 2016, these minimum standards were approved as National Standard ES3968:2016, “Rope Pumps”. This standard will be disseminated and promoted among the stakeholders to maintain the minimum quality standards of the products.

2. Quality Control and Human Resource Development of Rope Pump

Quality control of rope pump and Human resource development

To maintain a good reputation of the rope pump technology, it is important that the local manufacturers



Installation training

and installers give due attention to the quality of their works. The Project Team implemented the following three activities to maintain and to improve the quality of rope pumps. These experiences were incorporated into the documents; “Strategies for Strategies for Maintaining the Quality of Rope Pumps for Manufacturing, Installation and Maintenance Services”.

1) Preparation of technical documents

In addition to the technical manual on rope pump manufacturing, installation and maintenance, the Project Team prepared the checklists for the rope pump manufacturers and installers to self-check the quality of the products or works by themselves. These technical documents were also utilised for the technical trainings described below.

2) Training of rope pump manufacturers and Village Technicians through TVET system

The Project Team attempted to make the rope pump technology reachable to the local technicians by utilising the existing system of technical transfer. The Project first provided Training of Trainers (TOT) to the TVETC¹ instructors of 6 TVET Colleges in SNNPR. The trained trainers then began to give trainings after several teaching sessions through the technical trainings. These experiences enable the TVETCs to organise the trainings by themselves and created the environment where the technical transfer is done in a system, unlike

¹ Technical and Vocational Education and Training College

the previous situation where a limited number of experts give trainings as their private business.

In addition, rope pump installation and maintenance trainings for Village Technicians were held in 4 target areas. Village Technicians have roles in providing technical services in rope pump installation, support to users on operation and maintenance (O&M), and easy repair in their areas. The Project encourages Village Technicians by giving business-based services in rope pump installation and maintenance.

3) Adoption of certification system

In order for the trained technicians to sustain with the business, it is important to win the trust of the customers as “skilled technicians”. The Project adopted the system of Certificate of Competencies (COC) to assess the attainment of the trained technicians for rope pump manufacturing and installation. Two sets of test tools were prepared; one for rope pump manufacturing and another for rope pump installation and maintenance with the selected Unit of Competencies from TVET curriculum.



A manufacturer at COCTest (right)

Operation and maintenance at the Village Level

The Project promoted the village-level operation and maintenance of rope pumps. The Project Team encourage the rope pump users taking care of the pump by doing regular maintenance, such as weekly oiling

and checking of rope tension, while using the trained Village Technicians' technical services in minor repair on fee basis.

Village Technicians and rope pump users held meetings to share the work menu of the technical services. They exchanged views and opinions on types of services provided by the Village Technicians and agreed on fees of each service item. Through this meeting, users felt that their rope pumps can be well maintained by themselves with the technical services of Village Technicians.

The Project Team also prepared the list of parts/materials suppliers and distributed to the manufacturers and installers so that they can have better access to the required parts/materials, which often are not available in local markets.

3. Promotion of Rope Pump Technology and Improvement of Water Hygiene and Livelihoods

Formulation of rope pump promotion plans at regional and woreda levels

Workshops on rope pump promotion planning were held both at regional and woreda (WASH Team) levels. The plans for 2007 (2013/14) and 2008 (2015/16) Ethiopian fiscal year were thoroughly discussed among stakeholders; including water, health, agriculture, and education line officers.



Rope pump dissemination planning workshop



Demonstration of household water treatment method by a private company agent

Rope pump promotion activities in target areas

Rope Pump promotion cannot be successful without the acceptance and the trust in the technology by the local people. Promotional meetings were held at the village level to create demand of rope pumps by the team of extension workers, including Health Extension Workers (HEWs), Development Agents of agriculture, Omo Micro Finance Institution (OMFI) Agents and Woreda Water Officers. In addition to demonstration of rope pump, private companies who produce and sell Household Water Treatment and Storage (HWTS) goods also participated in the meetings and promoted their products.

As a result, over 200 households purchased rope pumps and their traditional hand dug wells were upgraded. The demand of rope pumps are increasing through the promotional activities of Woreda Water Offices and Village Technicians.

Sanitation & hygiene education and water quality monitoring

Physical improvement of well associated with rope pump installation may contribute to prevention of water from contamination. In particular, well-head work with reducer and a concrete well cover, construction of apron, drainage canal and soak away pit were introduced for better protection. Along with these physical measures, the users were encouraged to practice water point sanitation and treatment for drinking water through sanitation and hygiene education. Woreda Water and Health officers were trained on water quality test to

strengthen their knowledge and skills.



Water quality test

Good practices

The rope pump users gradually began to take actions to maintain the water points and improve livelihoods in various ways. These include; fencing around water point to keep animals away, coffee seedling nursery and back yard gardening for income generation. Some active users showed their interest in becoming Village Technicians.

The Project Team collected these good practices and documented to be utilised for further promotion of good practices.



Rope pump with coffee plantation behind, fenced, apple trees in front

3. Results of the Project Activities

Improved rope pump models

A rope pump frame is normally made with welded GI pipes. The Project came up with a newly improved “2014 Model”, which requires less metal materials on the rope pump frame. Several rope pump test models were field tested for a 6-month period and the Project

selected a promotional model, which has enough strength of the structure. This model could reduce the material cost and thus the sale price can be less than that of the previous JICA Model (around 10 % cost-down).

In addition, a model without metal frame, “Pole Model”, was developed without reducing the functionality of the current model. This may contribute to ease the burden of the rural households who are not always resourceful in terms of finance.

Human resources development through TVET system

11 TVETC instructors were trained as rope pump trainers and they gave training on rope pump manufacturing, installation and maintenance in different places with and without the Project support. Of those who were trained, 10 manufacturers obtained Certification of Competencies (COC). In addition, 81 technicians, including manufacturers, Village Technicians and woreda technicians, who live in SNNPR, Addis Ababa and Oromia Region, passed the COC in installation.

Strategies for quality control and operation and maintenance

In order to maintain the quality of rope pump manufacturing and installation works, “Strategies for Strategies for Maintaining the Quality of Rope Pumps for Manufacturing, Installation and Maintenance Services” was compiled. The strategies include; conforming to National Standard, promotion of internal quality control among the manufacturers and installers, strengthening customer services. Necessary tools are also annexed to the document.

“Strategies for Sustainable Operation and Maintenance of Rope Pumps for Family Wells” was also prepared, in order to encourage village-level O&M by users’ regular maintenance, Village Technicians’ business-based technical services, and manufacturers’ technical services in case of major technical problems which cannot be handled by Village Technicians.

Rope pump credit

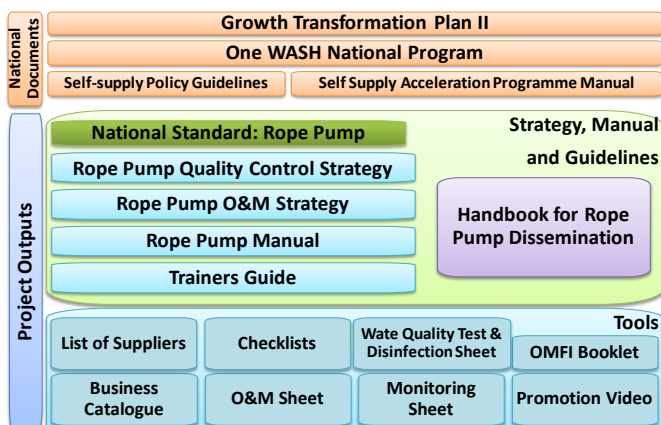
Rope Pump Credit contributed to the enabling environment for the local people to purchase rope pumps, while the extension workers promote the technology and some pioneer households demonstrate the benefits of the rope pump technology. Today, the number of the households who installed rope pumps is over 200 and the number is still increasing. Water and Irrigation Development Bureau (WIDB) of SNNPR adopted the method of this Rope Pump Credit as a regional credit scheme for Self-supply acceleration.

Compilation of Handbook for RP Dissemination through Self-supply

The experiences and lessons learnt through the field practices of rope pump promotion were compiled as “Handbook for Rope Pump Dissemination through Self-supply”. In the Handbook, a holistic approach to promotional works is introduced, while process steps for rope pump credit application and installation, well assessment criteria, methods and procedure of hygiene & sanitation and multi-use service promotion after installation are included.

Materials and tools developed by WAS-RoPSS

The figure below shows the materials, manuals and tools that were developed by the Project through its experiences for three years and 9 months, and their relationship with the national policies and plans. These were widely distributed to the stakeholders through the Project’s events and Final Seminars.



4. Lessons Learnt

National and international experiences in rope pump improvement and promotion

JICA, collaborated with a Dutch NGO, first introduced the rope pump technology to Ethiopia in 2004. WAS-RoPSS Project hired both national and international experts of rope pump, in addition to the Japanese Expert. Both national and international experts have been involved since the designing stage of the project and the both experiences are integrated into the project activities. A world-known rope pump expert’s experiences in rope pump promotion in Latin America and Africa were also reflected in improvement of the rope pump technology. The Project won the trust of the stakeholders, partially due to this involvement of technical input.

In particular, the participatory process and the result of standardisation of rope are highly appreciated by the stakeholders who promote Self-supply in and outside the country.

Cooperation and collaboration with Self-supply actors and organizing Self-supply Fair

From the beginning, the Project was actively involved in Self-supply Task Force (formerly called Self-supply Working Group), a national level forum of the governmental and non-governmental organisations for Self-supply acceleration. The activities were coordinated and aligned with the partners so as to maximise the effectiveness and efficiency of the Project interventions.



Minister visit to WAS-RoPSS booth, Exhibition of Self-supply Fair.

The Project played a leading role in the Task Force, and also led the process of issuing Self Supply News, a bi-monthly newsletter as a part of the collaborative work of the Task Force.

The Self-supply Fair was held in March, 2015 and 2016 consecutively, in association with the celebration of the “World Water Day”. In the fair, the Self-supply technologies such as rope pumps and HWTS goods were exhibited by various stakeholders including private service providers, NGOs and the Ministry. Self-supply seminars were also held during both fairs. International and national experts shared their knowledge and experiences in Self-supply.

Stimulation of the alignment of rope pump dissemination modality (water-agriculture alignment)

The Project Team tried to stimulate the process of alignment between Self-supply Programme of water sector and Household Irrigation Programme of agriculture sector both at the national and regional levels. A steering committee is being organised among water, agriculture, education, finance, vocational training, and the like in SNNPR, and both water and agriculture sectors agreed to align the modality in rope pump promotion and dissemination.

Sustainability of rope pump dissemination

10,000 rope pumps were procured by WIDB of SNNPR and delivered to zonal and woreda offices. The Project provided technical advices to WIDB.

For instance, technical information on the rope pump models, such as technical drawing and bill of quantities, were provided and supported to the process of rope pump procurement, especially preparation of tender documents.

In order to strengthen the promotion activities, orientations on RP dissemination were provided to the zonal and woreda line officers outside the Project target areas. In addition, full-scale installation and

maintenance trainings were organised in 3 zones outside the Project areas to develop the capacity of woreda technicians and Village Technicians.

The Project activities have expanded from 4 woredas of 4 zones to 36 woredas of 18 zones, and the ways and means to RP dissemination were widely utilised all over the region today.



Project Period: March 2013 – December 2016

Counterpart Organisations:

Ministry of Water, Irrigation and Electricity

Water and Irrigation Development Bureau of SNNPR

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